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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,994	10/08/2003	Armin Verhagen	10191/3387	8950

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EXAMINER	
NGUYEN, THU V	

ART UNIT	PAPER NUMBER
3661	

DATE MAILED: 02/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

6 14

Office Action Summary	Application No.	Applicant(s)
	10/681,994	VERHAGEN ET AL.
	Examiner	**Art Unit**
	Thu Nguyen	3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 December 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10 and 11* is/are rejected.

7)☒ Claim(s) *9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10/8/03 & 12/3/04* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The amendment filed on December 3, 2004 has been entered. By this amendment all claims 1-11 are now pending in the application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 6-7, 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunwoody et al (US 5,825,284) in view of Lu (US 2003/0236603).

As per claim 1-3, 6-7, 11, Dunwoody teaches a method for ascertaining a center of gravity of a motor vehicle, the method comprises: ascertaining a variable β representing a rolling motion of the vehicle (col.10, lines 55); ascertaining a variable representing a lateral acceleration of the vehicle (col.10, lines 9-15); ascertaining the center of gravity height as a function of the rolling motion variable (Fr-Ft = (M +Hhrc). 2/T and M=ks. β +Cs,dβ/dt in col.10, lines 5, 11, 51 and col.9, line 50) and the lateral acceleration (col.10, lines 9-15); Dunwoody does not explicitly disclose ascertaining the center of gravity height only according to a function of a change in the roll rate. However, Dunwoody teaches ascertaining the center of gravity height only when the lateral acceleration is above a certain threshold (col.10, lines 18-22), and Lu teaches that the change of roll rate could be determined by the lateral acceleration (para 0044). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the change of roll rate of Lu in determining suitable time for ascertaining the center of gravity height of the vehicle since selecting a component variable that is derived from the lateral acceleration variable in a known relationship to determine the suitable time to ascertain the center of gravity of height requires only routine skill in the art.

As per claim 10, Dunwoody teaches using truck mass in determining the center of gravity (col.6, li nes 32-33). Further, using estimate mass of the vehicle instead of actual weighting mass would have been both well known and obvious design choice.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dunwoody et al (US 5,825,284) in view of Lu (US 2003/0236603) and further in view of Lu et al (US 2003/0065430) (Lu '430 hereinafter).

As per claim 4, Lu '430 teaches obtaining roll angle by integrating the roll rate (para 0049). It would have been obvious to replace the roll rate with the derivative of the roll angle (the derivative of roll angle is the roll rate) when the roll angle is available in order to eliminate sensors that provide the roll rate.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dunwoody et al (US 5,825,284) in view of Lu (US 2003/0236603) and further in view of Lim (US 2002/0109310) and www-admin ("Center of Gravity" October 1997).

As per claim 5, Dunwoody teaches including a product of a load (W) and the center of gravity (hcga) of the axle (which is part of the payload of the vehicle) in calculating the center of gravity height (col.9, lines 25-32), and including payload into consideration (col.12, lines 29-32). Further, Lim teaches determining center of gravity from the mass and location of individual elements (which normally recognized by the center of gravity of the individual element) (para 0043), moreover, it is very well known in physics that the center of gravity of an object can be calculated as the function of the product of the mass mi and the center of gravity yi of the elements making the object (or different sections of one object having irregular shape and weight). This well known concept is herein presented in the enclosed document "center of gravity" by www-admin. Therefore in view of Lim, the center of gravity of the vehicle should include the product of the mass and center of gravity of load elements for improving accuracy in calculating the center of gravity of the vehicle.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dunwoody et al (US 5,825,284) in view of Lu (US 2003/0236603) and further in view of Fukada (US 6,502,023).

As per claim 8, Fukada teaches the effects of the roadway inclination on stability and reliability in determining the lateral acceleration (col.6, lines 17-24). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to not to evaluate the center of gravity height taught by Dunwoody when the roadway is substantially inclined in order to prevent obtaining inaccurate result of the calculation.

Allowable Subject Matter

6. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

Prior arts of record do not disclose the method for ascertaining a center of gravity height of a motor vehicle disclosed in claims 1 and 2 in which at least two driving conditions in which the roll rate has a substantially disappearing value is determined, and center of gravity height is ascertained as a function of a change in the roll angle between the two driving conditions and a change in the variable representing the lateral acceleration between the two driving conditions.

Response to Arguments

In response to applicant's argument on page 8 through page 9 first paragraph, Dunwoody at least does teach ascertaining the center of gravity height only in at least one predefined driving condition, namely, the condition when the lateral acceleration is above a predetermined threshold (col.10, lines 19-21), Dunwoody also suggests that ascertaining the center of gravity when there is a rolling of the vehicle frame can result in minor error (col.10, lines 26-29), therefore, to define the second driving condition when the vehicle frame is not rolling in ascertaining the center of gravity to eliminate minor error would have been obvious. Concerning applicant's argument that the calculation of the roll angular acceleration is not accomplished using only the lateral acceleration, it is admitted that the roll angular acceleration is determined based on other components besides the lateral acceleration; however, independent claims do not claim calculating the roll angular acceleration using only one lateral acceleration. Instead, independent claim 1 claims "a function of a change in a roll rate". As is well known to an ordinary person skilled in the art, the language "as a function of" means the variable "change in a roll rate" is one variable needed for the calculation, but the language does not at all exclude the use of other variables in the function. In fact, the present application teaches the driving conditions is further calculated as a function of another variable (the lateral acceleration) in claim 6, therefore, the present application does not really use only the roll rate in determining driving conditions.

In response to applicant's argument on page 9, third paragraph on claim 4, determining roll angle by taking integration of roll rate over time is very well known mathematic concept. However, to answer for the applicant traversal, the examiner provides herein the teaching of Lu et al (US 2003/0065430) paragraph 0049. This cited reference does not mean the examiner changes ground of rejection, this rather supports the examiner's position that the claimed subject matter is very well known.

In response to applicant's argument on page 9, on claim 7, in col.10, lines 26-29, Dunwoody teaches that the rolling of the vehicle frame may cause minor inaccuracy (higher result than the real center of gravity) in calculation of the center of gravity (col.10, lines 26-29), from Dunwoody's teaching, it would have been obvious that the center of gravity should be calculated when the roll rate of the vehicle frame is substantially small. In view of Dunwoody's suggestion that the center of gravity should be calculated when the lateral acceleration is above a threshold, and the roll rate should be small, Dunwoody obviously encompases determining center of gravity when the change of the roll rate (which is zero) is less than the lateral acceleration (which is above a threshold) multiplied by a factor having absolute value larger than one.

In response to applicant's argument on page 10, first paragraph on claim 10, Dunwoody actually teaches that the center of gravity can be ascertained as a function of the truck mass in col.6, line 32-33. Estimating the truck mass using the manufacturer's specification instead of physically weighting the truck would have been both well known and obvious use when the truck mass element is needed and the exact weight is not extremely crucial.

In response to applicant's argument in page 10-page 11 first paragraph (section 5) on claim 5, Lim does teach determining the center of gravity using the mass and location of the vehicle cargo and passengers (lines 9-12 of para 0043), and it is well known that the center of gravity is determined as a product of mass of element mi of payload and the center of gravity yi of each element that make up the payload. This well known concept is supported by www-admin in "center of gravity" section. The cited document supports previous assertion from the examiner that the multiplying the mass with the center of mass of the corresponding element of an object would have been well known.

In response to applicant's argument on page 11, claim 8, since Dunwoody teaches determining center of gravity based on the lateral acceleration (col.10, lines 11-15), and since, also admitted by applicant, Fukada teaches that the inclination of the road surface may cause substantial error in estimating the lateral acceleration, in view of Fukada's teaching, determining of center of gravity using Dunwoody should not be conducted on the inclined road to avoid error which inherently resulted in the error obtained from the lateral acceleration.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Nguyen whose telephone number is (703) 306-9130. The examiner can normally be reached on T-F (7:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (703) 305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 17, 2005

THU V. NGUYEN
PRIMARY EXAMINER